

REMARKS

The Final Office Action mailed January 10, 2006, has been received and reviewed. Claims 1-24 and 41 are currently pending in the application. Claims 1-24 and 41 stand rejected. Applicant proposes to cancel claims 2, 10, 24, and 41 (claims 25-40 were previously canceled) and amend claims 1, 3-9, and 11-23, and respectfully requests reconsideration of the application as proposed to be amended herein.

35 U.S.C. § 112 Claim Rejections

First Paragraph

Claim 1 stands rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant respectfully traverses this rejection, as hereinafter set forth.

The Office Action states:

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites the limitation "one or more of first, second and third power generators coupled to each one of upper and lower electrodes" which is not covered in specification. Paragraphs 0008, 0009 of the specification disclose "first, second , third power generators which are coupled to corresponding upper and lower electrodes for generating power signals" and as shown in Figure 1 the power generators are coupled to either the upper or lower electrodes, but do not disclose "one or more of the first, second and third power generators coupled to each one of upper and lower electrodes" that is "one" power generator coupled to both (upper and lower) electrodes or two/three power generators coupled to both (upper and lower)electrodes. (Office Action, p. 2).

Applicants respectfully disagree with the assertions that the amendments to the claims made in the prior Response to the Office Action do not comply with the written description requirement of 35 U.S.C. §112, first paragraph. However, in order to expedite prosecution on

the merits, Applicants propose to amend claim 1 to clarify the original intent. Applicants' proposed amendments to claim 1 recites:

1. A plasma reactor, comprising:
first, second and third power generators wherein the *first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode*; and
a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

Accordingly, Applicants submit that the amendments do not introduce new matter or require a further search. Furthermore, Applicants respectfully request that the 35 U.S.C. § 112, first paragraph, rejection of claim 1 be withdrawn.

Second Paragraph

Claims 1, 16 and 41 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses this rejection, as hereinafter set forth.

The Office Action states:

Claims 1, 16, 41 recites the limitation "one or more of first, second and third power generators coupled to each one of upper and lower electrodes". a) This limitation implies that reactor having either of one, two or three generators. b) Further, this limitation can be interpreted as only one generator connected to each one of upper and lower (both) electrodes or more than one generator (either two or three) be connected, to both (upper and lower) electrodes. The amended claim limitation does not seem to match with the disclosure (Figure 1). Therefore for the purpose of examination on merits, this claim limitation has been interpreted as "each of upper and lower (both) electrode is coupled to one or more of first, second and third power generators". (Office Action, p. 3).

Applicants' claims as proposed for amendment recite:

Claim 1

1. A plasma reactor, comprising:
first, second and third power generators wherein the *first power generator is coupled to*

an upper electrode and the second and third power generators are coupled to a lower electrode; and

a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

Claim 16

16. A plasma reactor, comprising:
a vacuum chamber including upper and lower electrodes therein;
first, second and third power generators wherein the ***first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode;*** and
a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

Claim 41

41. Canceled.

Applicants respectfully disagree with the assertions that the amendments to the claims made in the prior Response to the Office Action are indefinite and do not comply with the requirement of 35 U.S.C. §112, second paragraph. However, in order to expedite prosecution on the merits, Applicants propose to amend claims 1, 16, and 41 to further clarify the original intent.

Therefore, Applicants respectfully submit that the rejection of claims 1 and 16 (Claim 41 proposed to be canceled) under 35 U.S.C. § 112, second paragraph, as being indefinite should be withdrawn.

35 U.S.C. § 102 Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 6,491,978 B1 to Kalyanam

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Kalyanam (U.S. Patent No. 6,491,978 B1). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v.*

Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants submit that the Kalyanam reference does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of independent claim 1 because the Kalyanam reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

The Office Action alleges:

Regarding claim 1: Kalyanam teaches an apparatus (figure 4) [plasma enhanced mode] that comprises a process chamber 472, a RF source 494 (only one generator) connected to showerhead 440 and pedestal 432. Kalyanam also teaches a microprocessor (controller) 499 that monitors and controls the process performed in the apparatus (Column 14, lines 40-60). (Office Action, pp. 7-8).

Applicants respectfully disagree that the Kalyanam reference anticipates Applicants' invention as claimed in independent claim 1 which reads:

1. A plasma reactor, comprising:
first, second and third power generators wherein the ***first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode***; and
a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

In contrast, the Kalyanam reference discloses only a single generator, namely, "RF source 494 to cause the process gas in the processing region 456 between the showerhead 440 and the pedestal 432 to discharge and to form a plasma." (Kalyanam, col. 12, line 66 through col. 13, line 2). The "electrical power source 490 [in the Kalyanam reference] supplies power to a resistive heater 492 at the top of the pedestal 432 to thereby heat the pedestal 432 and thus the substrate 436 to an elevated temperature". (Kalyanam, col. 14, lines 41-44).

Clearly, the Kalyanam reference discloses a single "RF source", however nothing within the Kalyanam reference discloses "first, second and third power generators" as claimed by Applicants in amended independent claim 1.

Therefore, independent claim 1 cannot be anticipated by the Kalyanam reference under 35 U.S.C. § 102. Accordingly, such claim is allowable over the cited prior art and Applicants respectfully request that such rejection be withdrawn.

Anticipation Rejection Based on U.S. Patent No. 6,043,607 to Roderick

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Roderick (U.S. Patent No. 6,043,607). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants submit that the Roderick reference does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of independent claim 1 because the Roderick reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

The Office Action alleges:

Regarding claim 1: Roderick teaches an apparatus (Figures 1-3) that comprises first, second, third generators 118.sub.1, 118.sub.2, 118.sub.3 coupled to upper and lower electrodes 126, 114 and whose waveforms (amplitude and frequencies) are combined by waveform generator 102 and then split again by power splitter 106 and the required frequency bands are supplied to upper and lower electrodes 126 and 144 through respective matching networks 108, 110 respectively. Roderick also teach a feedback control device (controller) 300 (Column 3, lines 1-20) that provides dynamic control of signal characteristics of the three signals generators (column 4, lines 12-50). (Office Action, p. 8).

Applicants respectfully disagree that the Roderick reference anticipates Applicants' invention as claimed in independent claim 1 which reads:

1. A plasma reactor, comprising:
first, second and third power generators wherein the ***first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode***; and

a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

In contrast, the Roderick reference discloses “a plurality of sinusoidal signal generators 118n (n is an integer greater than 1) and a summer 120” (col. 3, lines 16-18) *forming “a complex waveform generator 102* coupled to a power amplifier 104” (col. 2, lines 60-61) and the “complex waveforms(s) (e.g., selected frequency bands) are *coupled to the cathode and anode electrodes 114 and 126* or, optionally, to an antenna 116” (col. 3, lines 5-7).

Specifically, the Roderick reference may use multiple “signal generators” to form one “waveform generator”, however, *only one waveform generator is coupled to an electrode*.

Clearly, the Roderick reference discloses a single “complex waveform generator”, however nothing within the Roderick reference discloses “first, second and third power generators” as claimed by Applicants in amended independent claim 1.

Therefore, independent claim 1 cannot be anticipated by the Roderick reference under 35 U.S.C. § 102. Accordingly, such claim is allowable over the cited prior art and Applicants respectfully request that such rejection be withdrawn.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent Publication No. 2002/0139665 A1 to DeOrnellas et al. in view of U.S. Patent No. 4,585,516 to Corn et al.

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over DeOrnellas et al. (U.S. Patent Publication No. 2002/0139665 A1) in view of Corn et al. (U.S. Patent No. 4,585,516). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on

applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 1 and 2 (Claim 2 proposed to be canceled) are improper because the elements for a prima facie case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Applicants' presently amended independent claim 1 recites:

1. A plasma reactor, comprising:
first, second and third power generators wherein the ***first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode***; and
a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

The Office Action alleges:

Regarding Claim 1: DeOrnellas et al teach a plasma apparatus (Figure 1), comprising upper electrode 26, lower electrode 28 and power generators 30, 32, 34 coupled to upper and lower electrodes. (Paragraphs 0023, 0024).

DeOrnellas et al do not teach controller for selectively activating the generators. Corn et al teach an apparatus (Figure 1) that has a control means (controller) 27 for controlling the signals applied to the reactor to improve etching capability of the apparatus (Column 2, lines 45-55 and Column 1, lines 36-38). Corn et al further teach that the apparatus uses at least two (implying there could be three sources) sources of RF power and the RF means could have different duty cycles (Column 1, lines 42-45). (Office Action, p. 9).

Applicants respectfully disagree that the cited references teach or suggest all of the claimed elements of Applicants' invention as presently claimed. Applicants interpret the statement in the Office Action referring to "upper electrode 26" as being a typographical error which in fact should read "upper electrode 24". Accordingly, Applicants' discussion will assume "upper electrode 24" rather than "the DeOrnellas publication reference's "side peripheral electrode 26".

The DeOrnellas publication reference teaches of a "bottom electrode 28", a "side peripheral electrode 26" and an "upward electrode 24" (paragraph [0023]). The DeOrnellas

publication reference further teaches that “the side peripheral electrode 26 is connected to a power supply 30 which provides power to the side peripheral electrode 26” (paragraph [0023]). The DeOrnellas publication reference further teaches that “[a] second power supply 32 is connected to the bottom electrode 28” (paragraph [0024]). Additionally, the DeOrnellas publication reference is very clear regarding the configuration of the “upward electrode”, namely, that the “**upward electrode**” is “**a grounded upward electrode 24**” (paragraphs [0023], [0027]). The DeOrnellas publication reference is clear that no power supply or power generator is connected to the “upward electrode.”

The Office Action introduces the Corn reference to teach control of the power generators.

Applicants respectfully submit that any proposed combination of the DeOrnellas publication reference and the Corn reference does not teach or suggest the claim limitations calling for “first, second and third power generators wherein the *first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode*; and a *controller configured to individually selectively activate* the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process”, as claimed by Applicants. Accordingly, since the DeOrnellas publication reference and the Corn reference, either individually or in any proper combination, do not teach or suggest Applicants’ invention as presently claimed in amended independent claim 1, such cited reference cannot render obvious under 35 U.S.C. §103 Applicants’ invention as presently claimed.

Therefore, Applicants respectfully request the rejection of claim 1 be withdrawn. Claim 2 has been canceled.

Obviousness Rejection Based on U.S. Patent No. 6,043,607 to Roderick in view of U.S. Patent No. 6,492,280 B1 to DeOrnellas et al.

Claims 2, 3 and 9-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Roderick (U.S. Patent No. 6,043,607) in view of DeOrnellas et al.(U.S. Patent No. 6,492,280 B1). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 2, 3, and 9 through 11 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Applicants propose herein to cancel claim 2 and amend claims 3, 9, and 10 to depend directly from presently amended independent claim 1.

Claims 2-3 and 9-11

Applicants' presently amended independent claim 1, from which claims 3, 9, and 11 depend (claims 2 and 10 have been canceled), recites:

1. A plasma reactor, comprising:
first, second and third power generators wherein the ***first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode***; and
a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

The Office Action alleges:

Regarding Claim 2: Roderick teaches all limitations of the claim as explained above. Roderick does not specifically teach the electrodes to which the generators are coupled. DeOrnellas et al teach an apparatus (Figure 6) that has generators 48, 50 coupled to lower electrode 42 for obtaining wafer etching with straight vertical sidewall profiles (Column 4, lines 50-65). ...
Regarding Claims 3: DeOrnellas et al teach that RF sources 48 has a frequency of 450 KHz and RF source 50 has frequency of 13.56 MHz, that is frequency

of second generator 50 is three times that of third generator 48 (Column 5, lines 1-10).

Regarding Claims 9-11: Roderick teaches that feedback control device 300 (controller) dynamically controls one or more signal characteristics like amplitude, power, frequency etc of the signal produced by each of the generators (Column 4, lines 15-20). (Office Action, p. 10).

Applicants respectfully disagree that the cited references teach or suggest all of the claimed elements of Applicants' invention as presently claimed. The Roderick reference teaches "a plurality of sinusoidal signal generators 118n (n is an integer greater than 1) and a summer 120" (col. 3, lines 16-18) *forming "a complex waveform generator 102* coupled to a power amplifier 104" (col. 2, lines 60-61) and the "complex waveforms(s) (e.g., selected frequency bands) are *coupled to the cathode and anode electrodes 114 and 126* or, optionally, to an antenna 116" (col. 3, lines 5-7).

Specifically, the Roderick reference may use multiple "signal generators" to form one "waveform generator", however, *only one waveform generator is coupled to an electrode.*

The Office Action introduces the DeOrnellas patent reference to teach "generators 48, 50 coupled to lower electrode 42" (Office Action, p. 10). While the DeOrnellas patent reference specifically recites an upper electrode 46 that is grounded (col. 4, lines 63-64), and

two power supplies, first power supply 48 and second power supply 50, are connected to the bottom electrode 42 through a appropriate circuitry 52 which includes matching networks and a combiner. Further a *controller 54 controls the sequencing of the first and second AC power supplies 48, 50* (col. 4, line 65 through col. 5, line 3; emphasis added),

any teaching or suggestion regarding "controller 54" and "sequencing of the first and second AC power supplies 48, 50" is limited to "first power supply 48 ... is preferably turned off" and "*second power supply [50] is maintained* at about 13.56 MHZ, with a power of about 500 watts to about 1100 watts." (DeOrnellas, col. 6, lines 38-46; emphasis added.)

Applicants respectfully submit that the teaching or suggestion of merely "maintain[ing]" the "second power supply" of the DeOrnellas patent reference in an on state cannot render obvious under 35 U.S.C. §103 Applicants' claimed invention of "*a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a*

process.” (Emphasis added.) Accordingly, since the Roderick reference and the DeOrnellas patent reference, either individually or in any proper combination, do not teach or suggest Applicants’ invention as presently claimed in amended independent claim 1 and claims 3, 9, (claim 10 proposed to be canceled), and 11 at least indirectly depending therefrom, such cited reference can not render obvious under 35 U.S.C. §103 Applicants’ invention as presently claimed.

Therefore, Applicants respectfully request the rejections of claims 3, 9, 11 be withdrawn. Claims 2 and 10 have been canceled.

Obviousness Rejection Based on U.S. Patent No. 5,656,123 to Salimian et al. in view of U.S. Patent No. 6,492,280 B1 to DeOrnellas et al. and U.S. Patent No. 5,716,534 to Tsuchiya et al.

Claims 1, 2, 4 and 12-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Salimian et al. (U.S. Patent No. 5,656,123) in view of DeOrnellas et al.(U.S. Patent No. 6,492,280 B1) and Tsuchiya et al. (U.S. Patent No. 5,716,534). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 1, 4, and 12 through 23 (claims 2 and 24 have been canceled) are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Claims 1, 4, and 12-23

Applicants’ presently amended independent claim 1 recites:

1. A plasma reactor, comprising:
first, second and third power generators wherein the *first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode*; and
a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

Applicants' presently amended independent claim 16 recites:

16. A plasma reactor, comprising:
a vacuum chamber including upper and lower electrodes therein;
first, second and third power generators wherein the *first power generator is coupled to an upper electrode and the second and third power generators are coupled to a lower electrode*; and
a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process. (Emphasis added.)

The Office Action alleges:

Regarding Claims 1, 2, 16, 24: Salimian et al teach an apparatus (Figure 1) that comprises a vacuum chamber 14, generators 12, 16 coupled to upper and lower electrodes 20, 22 (column 5, lines 35-55).

Salimian et al do not teach third power supply and controller.

DeOrnellas et al teach an apparatus (Figure 6) that has generators 48, 50 coupled to lower electrode 42 and a controller 54 for obtaining wafer etching with straight vertical sidewall profiles. (Office Action, p. 6) ...

Tsuchiya et al teach an apparatus (Figures 1, 30-33) that uses CPU (controller) 20 to control power supplies 18, 29 for ON/OFF (active/inactive) modes to optimize the etching parameters (Column 8, line 65 to Column 9, line 15 and Column 12, lines 45-65 and Column 13, lines 1-25). Tsuchiya et al further teach that etching parameters can be optimized by appropriately selecting the parameters including phase difference and the power ratio of the generators (column 8, lines 20-25). (Office Action, pp. 10-11).

Applicants respectfully disagree that the cited references teach or suggest all of the claimed elements of Applicants' invention as presently claimed. The Salimian reference teaches "a 60 MHz RF signal from 60 MHz RF generator 12" which travels through a matchbox and is

impedance matched to an “upper electrode 20” (col. 6, lines 19-28). The Salimian reference is entirely silent regarding any control of a generator coupled to an upper electrode.

The DeOrnalles patent reference teaches “upper electrode 46 are grounded as shown” (col 4, lines 63-64) with “[p]referably two power supplies, first power supply 48 and second power supply 50, are connected to the bottom electrode 42” (col. 4, lines 65-67) and “[f]urther, a controller 54 controls the sequencing of the first and second AC power supplies 48, 50” (col. 5, lines 1-3).

Clearly the “controller” as taught in the DeOrnalles patent reference is configured to sequence power supplies on a common electrode, namely the bottom electrode. Any controlling of generators on the upper **and** lower electrodes is wholly absent from the combination of the cited references. Furthermore, Applicants sustain the above-cited arguments regarding the lack of teaching or suggestion in the DeOrnalles patent reference of control of the first power supply and second power supply on the bottom electrode. Specifically, the DeOrnalles patent reference only teaches or suggests that “controller 54” and “sequencing of the first and second AC power supplies 48, 50” is limited to “first power supply 48 ... is preferably turned off” and “***second power supply [50] is maintained*** at about 13.56 MHZ, with a power of about 500 watts to about 1100 watts.” (DeOrnellas, col. 6, lines 38-46; emphasis added.)

Applicants respectfully submit that the teaching or suggestion of merely “maintain[ing]” the “second power supply” of the DeOrnellas patent reference in an on state cannot render obvious under 35 U.S.C. §103 Applicants’ claimed invention of “***a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process.***” (Emphasis added.)

The Tsuchiya reference specifically teaches or suggests a controller that configures and upper and lower power generator to either lead or lag the other.

Applicants respectfully submit that any proposed combination of the Salimian reference and the DeOrnellas patent reference and the Tsuchiya reference does not teach or suggest the claim limitations calling for “first, second and third power generators wherein the ***first power generator is coupled to an upper electrode and the second and third power generators are***

coupled to a lower electrode; and a controller configured to individually selectively activate the first, second and third power generators to a plurality of activation configurations during a corresponding plurality of phases of a duty cycle of a process” as claimed by Applicants in amended independent claims 1 and 16 from which claims 4, 12-24 depend.

Accordingly, since the Salimian reference and the DeOrnellas patent reference and the Tsuchiya reference, either individually or in any proper combination, do not teach or suggest Applicants’ invention as presently claimed in amended independent claims 1 and 16 and claims 4, 12-24 at least respectively indirectly depending therefrom. Accordingly, such cited references can not render obvious under 35 U.S.C. §103 Applicants’ invention as presently claimed.

Therefore, Applicants respectfully request the rejection of claims 4, and 12 through 23 be withdrawn. Claims 2 and 24 have been canceled.

Obviousness Rejection Based on U.S. Patent Publication No. 2002/0139665 A1 to DeOrnellas et al. in view of U.S. Patent No. 4,585,516 to Corn et al. as applied to claims 1 and 2, and further in view of U.S. Patent No. 5,716,534 to Tsuchiya et al.

Claims 5-11 and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over DeOrnellas et al. (U.S. Patent Publication No. 2002/0139665 A1) in view of Corn et al.(U.S. Patent No. 4,585,516) as applied to claims 1 and 2, and further in view of Tsuchiya et al. (U.S. Patent No. 5,716,534). Applicant respectfully traverses this rejection, as hereinafter set forth.

The nonobviousness of independent claim 1 precludes a rejection of claims 5-11 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. See In re Fine, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), see also MPEP § 2143.03. Therefore, the Applicants request that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejections to independent claim 1 and claim 5-11 which depend therefrom.

Claim 41 has been proposed to be canceled.

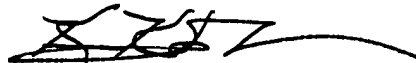
ENTRY OF AMENDMENTS

The proposed cancellation of claims 2, 10, 24, 41 and amendments to claims 1, 3-9, 11-23 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search. Finally, if the Examiner determines that the amendments do not place the application in condition for allowance, entry is respectfully requested upon filing of a Notice of Appeal herein.

CONCLUSION

Claims 1, 3-9, and 11-23 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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